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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/841,889	04/25/2001	David Myr	M74-002	6143

7590

01/08/2004

Paul & Paul
2900 Two Thousand Market Street
Philadelphia, PA 19103

EXAMINER

RAMPURIA, SHARAD K

ART UNIT

PAPER NUMBER

2683

DATE MAILED: 01/08/2004

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Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/841,889

Applicant(s)

MYR, DAVID

Examiner

Sharad K. Rampuria

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-19 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-19 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on ____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. §§ 119 and 120

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. ____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
* See the attached detailed Office action for a list of the certified copies not received.
- 13) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application) since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.
a) ☐ The translation of the foreign language provisional application has been received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121 since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892) 4) ☐ Interview Summary (PTO-413) Paper No(s). ____
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948) 5) ☐ Notice of Informal Patent Application (PTO-152)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) ____ 6) ☐ Other: ____

DETAILED ACTION

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Maloney et al., Soliman et al., Nielsen et al.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1-4, & 9-18 are rejected under 35 U.S.C. 103(a) as being unpatentable over Krasner et al. in view of Kuwahara.

1. Regarding Claim 1, Krasner disclosed Method for simultaneous estimation of locations of a number of mobile stations in a mobile radio communication system that includes a number of base station cells, a plurality of mobile stations, and a central processing station (abstract), the method comprising the steps of:

creating "Timing Block Method" for TOA signal measurements on base stations by using additional correlators; (col.7; 40-63)

using additional correlators in the receiver base station antennas for TOA measurements in synchronized cell systems on arriving signals on each of said antennas; (col.8; 8-43) and

Krasner fails to disclosed additional supporting correlator on each base station receiver for time measurements of signals between one of said base station antennas and an additional antenna. However, Kuwahara teaches in an analogous art, that using additional supporting correlator on each base station receiver for time measurements of signals between one of said base station antennas and an additional antenna; (col.2; 66-col.3; 27) using signal time delays measured in short time intervals of a few nanoseconds with phase shift measurements with inaccuracy not exceeding 0.5 degrees. (col.10; 30-39) Therefore, it would have been obvious to one of ordinary skill in the art at the time of invention to include additional supporting correlator on each base station receiver for time measurements of signals between one of said base station antennas and an additional antenna in order to provide positioning a portable terminal in a cell covered by cellular base station.

2. Regarding Claim 2, Krasner disclosed The method of claim 1, comprising using the additional correlators in the receiver BS antennas for TOA measurements in synchronized cell systems on arriving signals for time stop calculations on each of said antennas. (col.7; 40-63)

3. Regarding Claim 3, Krasner disclosed Method as described in claim 1 including forwarding location data and timing information obtained from a plurality of base stations. (col.8; 31-43 & col.8; 55-col.9; 14)

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4. Regarding Claim 4, Krasner disclosed The method of claim 1 comprising:

using a server capable of processing in real time the location and timing data obtained from all base stations and transforming them into appropriately structured data suitable for storing in a database and being used in further mathematical computations; (col.7; 40-63)

storing and updating location and timing data obtained from all base stations relating to a plurality of mobile stations in a database; (col.7; 40-63)

using software to effect calculations of TOA, TDOA, attenuation and other quantities relevant to location of mobile stations; (col.8; 31-43 & col.8; 55-col.9; 14)

calculating TOA, TDOA, attenuation and other quantities relevant to location of mobile stations, with algorithms that use direct and exact methods; (col.8; 31-43 & col.8; 55-col.9; 14) and

estimating locations of a plurality of mobile stations based on the computed TOA, TDOA, attenuation and other relevant quantities and capable of handling gross measurement errors and position ambiguities resulting from multipath phenomena and other possible interference by the use of statistical algorithms. (col.8; 31-43 & col.8; 55-col.9; 14)

9. Regarding Claim 9, Krasner disclosed Method of determination of mobile station coordinates by utilizing the method of time difference of arrival (TDOA) of signals by synchronizing signals from two base stations, the method (abstract) comprising the steps of:

applying the TDOA method in all of base stations after the monitoring base station executes synchronization of local oscillator in specific mobile station and it answers the location inquiry signal; (col.7; 40-63)

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applying the TDOA method for measuring electromagnetic waves between all antennas equipped with supporting correlators and with the correlators of all receiver base station antennas; (col.8; 8-43) and

Krasner fails to disclosed utilizing a supporting correlator for receiver and an additional antenna positioned close to one of said base station antenna receiver whereas these additional antennas are collocated at all base station and participate in location service of the mobile stations in a given cell. However, Kuwahara teaches in an analogous art, that utilizing a supporting correlator for receiver and an additional antenna positioned close to one of said base station antenna receiver whereas these additional antennas are collocated at all base station and participate in location service of the mobile stations in a given cell; (col.2; 66-col.3; 27) obtaining time delays as differences of phases in signals received by all antennas. (col.10; 1-14) Therefore, it would have been obvious to one of ordinary skill in the art at the time of invention to include utilizing a supporting correlator for receiver and an additional antenna positioned close to one of said base station antenna receiver whereas these additional antennas are collocated at all base station and participate in location service of the mobile stations in a given cell in order to provide positioning a portable terminal in a cell covered by cellular base station.

10. Regarding Claim 10, Krasner disclosed Method as described in claim 9 including forwarding location data and timing information obtained from a plurality of base stations. (col.8; 31-43 & col.8; 55-col.9; 14)

11. Regarding Claim 11, Krasner disclosed Method of communication comprising taking measurements of a time interval in case of interruption of measuring process in windows frames in an IS-95 CDMA operating system. (col.2; 21-28)

12. Regarding Claim 12, Krasner disclosed Method as described in claim 11 including forwarding location data and timing information obtained from a plurality of base stations. (col.8; 31-43 & col.8; 55-col.9; 14)

13. Regarding Claim 13, Krasner disclosed Method of communication comprising taking phase shift measurements in case of the phase interruption of the measuring process of windows frames in an IS-95 CDMA operating system. (col.2; 21-28)

14. Regarding Claim 14, Krasner disclosed Method as described in claim 13 including forwarding location data and timing information obtained from a plurality of base stations. (col.8; 31-43 & col.8; 55-col.9; 14)

15. Regarding Claim 15, Krasner disclosed Apparatus for determination of an mobile station location by using base stations base stations operating in a predetermined CDMA standard comprising:

a timestamp clock for time delays working with the intervals of interruption of window frames in CDMA operating systems; (col.7; 40-63)

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a descrambler for keeping the results of time delay measurements and transmissions in the PC computer for calculation of coordinates of mobile station's using mathematical algorithms described below. (col.8; 55-66)

Krasner fails to disclosed an additional control communication channel used for receiving location signals from two antennas. However, Kuwahara teaches in an analogous art, that an additional control communication channel used for receiving location signals from two antennas; (col.2; 66-col.3; 27) Therefore, it would have been obvious to one of ordinary skill in the art at the time of invention to include an additional control communication channel used for receiving location signals from two antennas in order to provide positioning a portable terminal in a cell covered by cellular base station.

16. Regarding Claim 16, Krasner disclosed Apparatus as described in claim 15 including means for locating data and timing information obtained from a plurality of base stations. (col.8; 31-43 & col.8; 55-col.9; 14)

17. Regarding Claim 17, Krasner disclosed Apparatus as described in claim 15, in which the central processing station comprises:

server capable of processing in real time the location and timing data obtained from all base stations and transforming them into appropriately structured data suitable for storing in a database and being used in further mathematical computations; (col.7; 40-63)

database for storing and updating location and timing data obtained from all base stations relating to a plurality of mobile stations; (col.7; 40-63)

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software for calculating TOA, TDOA, attenuation and other quantities relevant to location of mobile stations; (col.8; 31-43 & col.8; 55-col.9; 14)

mathematical algorithms calculating TOA, TDOA, attenuation and other quantities relevant to location of mobile stations, that use direct and exact (as opposed to approximations) methods; (col.8; 31-43 & col.8; 55-col.9; 14) and

statistical algorithms (software) for estimating locations of a plurality of mobile stations based on the computed TOA, TDOA, attenuation and other relevant quantities and capable of handling gross measurement errors and position ambiguities resulting from multipath phenomena and other possible interference. (col.8; 31-43 & col.8; 55-col.9; 14)

18. Regarding Claim 18, Krasner disclosed Apparatus as described in claim 15 including wherein the predetermined CDMA standard is the IS-95 CDMA standard. (col.2; 21-28)

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in a patent granted on an application for patent by another filed in the United States before the invention thereof by the applicant for patent, or on an international application by another who has fulfilled the requirements of paragraphs (1), (2), and (4) of section 371(c) of this title before the invention thereof by the applicant for patent.

The changes made to 35 U.S.C. 102(e) by the American Inventors Protection Act of 1999 (AIPA) and the Intellectual Property and High Technology Technical Amendments Act of 2002 do not apply when the reference is a U.S. patent resulting directly or indirectly from an international application filed before November 29, 2000.

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Therefore, the prior art date of the reference is determined under 35 U.S.C. 102(e) prior to the amendment by the AIPA (pre-AIPA 35 U.S.C. 102(e)).

Claims 5-6 are rejected under 35 U.S.C. 102 (e) as being anticipated by Karr, JR. et al.

5. Regarding Claim 5, Karr disclosed Method for operator-initiated (pg. 14; 0200) continuous location estimation of signals traveling from base stations to client mobile stations operating in "idle" stand-by mode (pg. 13; 0196) and in opposite directions comprising:

emitting a position request signal from at least one base station through a control channel;

emitting a position signal from each of the mobile stations receiving the location enquire signal from at least one base station, the location signal containing identification information on the corresponding mobile stations; and

receiving the position signal from each of the mobile stations in base stations neighboring the corresponding mobile stations. (pg. 16; 0224-0225)

6. Regarding Claim 6, Karr disclosed Method as described in claim 5 including forwarding location data and timing information obtained from a plurality of base stations. (pg. 16; 0245)

Claims 7-8, 19 are rejected under 35 U.S.C. 102 (e) as being anticipated by Krasner et al.

7. Regarding Claim 7, Krasner disclosed Method of determination of mobile station coordinates by receiving and processing of the radio signals from corresponding mobile station in several

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base station located at various distances from each other in single cell configuration (abstract) comprising the steps of:

measuring signal in base stations, which also conduct monitoring of the mobile station and execute synchronization of local oscillator in the mobile station when it answers a location enquiry signal in one of the base stations; (col.10; 59-col.11;13)

synchronization of the signal frequencies and phasing as realized by GPS clocks on all base station oscillators in a given cell whereas base station transmission of position signals is in a form of "windows frames" in a predetermined CDMA standard for all mobile stations; (col.10; 59-col.11;13)

measuring time delays as a time differences between the signal leaving the supporting correlator and signal arriving on the receiver correlator located in the base station; and transmitting all data to the Central Processing Station via standard digital interface. (col.6; 57-col.7; 33)

8. Regarding Claim 8, Krasner disclosed Method as described in claim 7 including forwarding location data and timing information obtained from a plurality of base stations. (col.8; 31-43 & col.8; 55-col.9; 14)

19. Regarding Claim 19, Krasner disclosed Central processing station capable of simultaneous estimation of locations of a number of mobile stations in a mobile radio communication system that includes a number of base station cells, a plurality of mobile stations, the central processing station (col.6; 57-col.7; 33) comprising:

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server capable of processing in real time the location and timing data obtained from all base stations and transforming them into appropriately structured data suitable for storing in a database and being used in further mathematical computations; (col.8; 31-43 & col.8; 55-col.9; 14)

database for storing and updating location and timing data obtained from all base stations relating to a plurality of mobile stations; (col.8; 31-43 & col.8; 55-col.9; 14) and

software for calculating TOA, TDOA, attenuation and other quantities relevant to location of mobile stations, (col.8; 31-43 & col.8; 55-col.9; 14)

wherein mathematical algorithms are used for calculating TOA, TDOA, attenuation and other quantities relevant to location of mobile stations, that use direct and exact (as opposed to approximations) methods, and wherein statistical algorithms are used for estimating locations of a plurality of mobile stations based on the computed TOA, TDOA, attenuation and other relevant quantities and capable of handling gross measurement errors and position ambiguities resulting from multipath phenomena and other possible interference. (col.8; 31-43 & col.8; 55-col.9; 14)

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Sharad Rampuria whose telephone number is 703-308-4736. The examiner can normally be reached on Mon-Thu. (8:15-5:45) alternate Fri.(8:15-4:45).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, William Trost can be reached on 703-308-5318. The fax phone numbers for the organization where this application or proceeding is assigned are 703-872-9314 for regular communications and 703-872-9314 for After Final communications.

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Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-305-4700.

Sharad K. Rampuria
December 31, 2003



WILLIAM TROST
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 2600

Interview Summary	Application No. 09/841,889	Applicant(s) MYR, DAVID	
	Examiner Sharad Rampuria	Art Unit 2683	

All participants (applicant, applicant's representative, PTO personnel):

(1) Sharad Rampuria.

(3) Gerry Elman.

(2) William Trost.

(4) MICHAEL KAN

Date of Interview: 19 May 2004.

Type: a) ☒ Telephonic b) ☐ Video Conference
c) ☐ Personal [copy given to: 1) ☐ applicant 2) ☐ applicant's representative]

Exhibit shown or demonstration conducted: d) ☐ Yes e) ☒ No.
If Yes, brief description: _____.

Claim(s) discussed: _____.

Identification of prior art discussed: _____.

Agreement with respect to the claims f) ☐ was reached. g) ☐ was not reached. h) ☐ N/A.

Substance of Interview including description of the general nature of what was agreed to if an agreement was reached, or any other comments: _____.

(A fuller description, if necessary, and a copy of the amendments which the examiner agreed would render the claims allowable, if available, must be attached. Also, where no copy of the amendments that would render the claims allowable is available, a summary thereof must be attached.)

THE FORMAL WRITTEN REPLY TO THE LAST OFFICE ACTION MUST INCLUDE THE SUBSTANCE OF THE INTERVIEW. (See MPEP Section 713.04). If a reply to the last Office action has already been filed, APPLICANT IS GIVEN ONE MONTH FROM THIS INTERVIEW DATE, OR THE MAILING DATE OF THIS INTERVIEW SUMMARY FORM, WHICHEVER IS LATER, TO FILE A STATEMENT OF THE SUBSTANCE OF THE INTERVIEW. See Summary of Record of Interview requirements on reverse side or on attached sheet.

APPLICANT'S REP. CAME WITH PROPOSED AMENDMENTS.
EXAMINER WILL UPDATE THE SEARCH BASED
ON FORMAL RESPONSE FROM APPLICANT'S REP.

Examiner Note: You must sign this form unless it is an Attachment to a signed Office action.

Sharad Rampuria
Examiner's signature, if required

Summary of Record of Interview Requirements

Manual of Patent Examining Procedure (MPEP), Section 713.04, Substance of Interview Must be Made of Record

A complete written statement as to the substance of any face-to-face, video conference, or telephone interview with regard to an application must be made of record in the application whether or not an agreement with the examiner was reached at the interview.

Title 37 Code of Federal Regulations (CFR) § 1.133 Interviews

Paragraph (b)

In every instance where reconsideration is requested in view of an interview with an examiner, a complete written statement of the reasons presented at the interview as warranting favorable action must be filed by the applicant. An interview does not remove the necessity for reply to Office action as specified in §§ 1.111, 1.135. (35 U.S.C. 132)

37 CFR §1.2 Business to be transacted in writing.

All business with the Patent or Trademark Office should be transacted in writing. The personal attendance of applicants or their attorneys or agents at the Patent and Trademark Office is unnecessary. The action of the Patent and Trademark Office will be based exclusively on the written record in the Office. No attention will be paid to any alleged oral promise, stipulation, or understanding in relation to which there is disagreement or doubt.

The action of the Patent and Trademark Office cannot be based exclusively on the written record in the Office if that record is itself incomplete through the failure to record the substance of interviews.

It is the responsibility of the applicant or the attorney or agent to make the substance of an interview of record in the application file, unless the examiner indicates he or she will do so. It is the examiner's responsibility to see that such a record is made and to correct material inaccuracies which bear directly on the question of patentability.

Examiners must complete an Interview Summary Form for each interview held where a matter of substance has been discussed during the interview by checking the appropriate boxes and filling in the blanks. Discussions regarding only procedural matters, directed solely to restriction requirements for which interview recordation is otherwise provided for in Section 812.01 of the Manual of Patent Examining Procedure, or pointing out typographical errors or unreadable script in Office actions or the like, are excluded from the interview recordation procedures below. Where the substance of an interview is completely recorded in an Examiners Amendment, no separate Interview Summary Record is required.

The Interview Summary Form shall be given an appropriate Paper No., placed in the right hand portion of the file, and listed on the "Contents" section of the file wrapper. In a personal interview, a duplicate of the Form is given to the applicant (or attorney or agent) at the conclusion of the interview. In the case of a telephone or video-conference interview, the copy is mailed to the applicant's correspondence address either with or prior to the next official communication. If additional correspondence from the examiner is not likely before an allowance or if other circumstances dictate, the Form should be mailed promptly after the interview rather than with the next official communication.

The Form provides for recordation of the following information:

- Application Number (Series Code and Serial Number)
- Name of applicant
- Name of examiner
- Date of interview
- Type of interview (telephonic, video-conference, or personal)
- Name of participant(s) (applicant, attorney or agent, examiner, other PTO personnel, etc.)
- An indication whether or not an exhibit was shown or a demonstration conducted
- An identification of the specific prior art discussed
- An indication whether an agreement was reached and if so, a description of the general nature of the agreement (may be by attachment of a copy of amendments or claims agreed as being allowable). Note: Agreement as to allowability is tentative and does not restrict further action by the examiner to the contrary.
- The signature of the examiner who conducted the interview (if Form is not an attachment to a signed Office action)

It is desirable that the examiner orally remind the applicant of his or her obligation to record the substance of the interview of each case. It should be noted, however, that the Interview Summary Form will not normally be considered a complete and proper recordation of the interview unless it includes, or is supplemented by the applicant or the examiner to include, all of the applicable items required below concerning the substance of the interview.

A complete and proper recordation of the substance of any interview should include at least the following applicable items:

- 1) A brief description of the nature of any exhibit shown or any demonstration conducted,
- 2) an identification of the claims discussed,
- 3) an identification of the specific prior art discussed,
- 4) an identification of the principal proposed amendments of a substantive nature discussed, unless these are already described on the Interview Summary Form completed by the Examiner,
- 5) a brief identification of the general thrust of the principal arguments presented to the examiner,
(The identification of arguments need not be lengthy or elaborate. A verbatim or highly detailed description of the arguments is not required. The identification of the arguments is sufficient if the general nature or thrust of the principal arguments made to the examiner can be understood in the context of the application file. Of course, the applicant may desire to emphasize and fully describe those arguments which he or she feels were or might be persuasive to the examiner.)
- 6) a general indication of any other pertinent matters discussed, and
- 7) if appropriate, the general results or outcome of the interview unless already described in the Interview Summary Form completed by the examiner.

Examiners are expected to carefully review the applicant's record of the substance of an interview. If the record is not complete and accurate, the examiner will give the applicant an extendable one month time period to correct the record.

Examiner to Check for Accuracy

If the claims are allowable for other reasons of record, the examiner should send a letter setting forth the examiner's version of the statement attributed to him or her. If the record is complete and accurate, the examiner should place the indication, "Interview Record OK" on the paper recording the substance of the interview along with the date and the examiner's initials.